MANAGEMENT STRATEGIES FOR INTEGRATING TECHNOLOGY INTO MUSEUMS' PUBLIC PROGRAMS.

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May 25, 2012

THESIS

Presented in Partial Fulfillment of the Requirements for

The Master of Science in Arts Administration Drexel University

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Drexel University

2012

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ABSTRACT

This thesis explores the common management strategies used when integrating technology into public programming at museums. The findings show the most important strategies: how initial goals of the program relate to the museum's mission, user involvement in the initial design, program evaluation methods, staff roles in the initial design, the day-to-day management of the program, and the attitude of leadership.

This study shows the most important strategies needed for successful integration of technology, and how they can be guided by the opinions of experts. The findings demonstrate that successful programs can be created with limited resources and different levels of technology capacity.

In order to find these similar strategies, six programs that were previous winners of a MUSE Award from the American Association of Museums were studied. Their program managers were interviewed and findings were then synthesized to understand common strategies. Experts in each section were consulted to give insight into the meaning of the results.

Dedicated to my Family, Friends and Colleagues from Philadelphia, PA.

ACKNOWLEDGEMENTS

This thesis was possible from the support of my family and friends. Assistance from Julie Hawkins at Drexel University for her clear instruction of the process and the formulation of ideas brought this paper to fruition. Special acknowledgements are due to my colleague and good friend Michelle Lopez for her emotional support during entire process.

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INTRODUCTION

Now more than ever technology is a tool in public programming, administration and communication, working toward mission fulfillment and community engagement. It allows for better communication with donors, volunteers, aides research, and helps fulfill funding requirements[1]. Technology is being used in museums' on-site and online programming; inviting visitors to engage with organizations in an interactive dialogue[2]. As newer generations begin developing relationships with museums; integrating technology will become more important in creating an exciting and engaging environment. Program managers need to understand the unique challenges of technology and thoughtful solutions needed to implement technology effectively.

This study examines the shared management techniques of program managers administering award winning technology-based public programs at museums, seeking to understand those strategies that most contribute to the success of the programs.

REVIEW OF LITERATURE

History of Technology in Nonprofit Arts and Culture Organizations

Cultural institutions create visitor experiences to engage the patron and deliver informational content. New and meaningful tools deepened this interaction as early as the

[1] (Council of Nonprofits, 2011)
[2] (Adair, Filene, Koloski, 2011)

1950s when the Stedelijk Museum began using short wave radios to transmit pre-recorded lectures[3]. This is the first time handheld technology was used to enhance visitors' experience and knowledge of the museum's collection. This style of technology-based content delivery continued into the 1970s being used for special exhibitions, and in 1993 they were introduced into permanent collections[4]. Now audio tours are a widespread tool at museums and other institutions like zoos, aquariums, and historical sites[5].

Currently museums are using a range of technology driven devices in public programming[6]. Where the program takes place plays a large role in the type of technology that is chosen; on-site programs utilize devices such as tablets, or computers with touch screen monitors. The National World War One Museum in Kansas City has numerous examples of modern programming techniques that incorporate technology[7]. Audio Visual additions included the use of LED light pens, table sized computers where visitors navigate educational content. Interactive kiosks are made to be further engaging with imaginative activities including creating artwork, participating in mock negotiations and allowing users to design battle plans[8].

Currently 80% of Americans use the Internet[9], 84% own cell phones, and of those participants 38% said they have downloaded apps to their phone[10]. This growth can be

[3] (Tallon, 2008)
[4] (Tallon, 2008)
[5] (Weaver, 2007)
[6] (Black, 2005)
[7] (Horan, 2007)
[8] (Horan, 2007)
[9] (pewinternet.org, 2011)
[10] (Purcell, 2011)

translated into action as museums move their mission outside of their physical plant; putting visitor engagement on a global scale[11]. Managers have the option of using the visitor's own personal device including but not limited to: smart-phones, tablets, MP3 players, and digital cameras. These elements share three main properties allowing for their integration into public programming: they are able to be used at any location, are functionally based in digital technology, and there is an established relationship between the visitor and the device[12]. The relationship to the device can facilitate a deeper relationship between the individual and the organization[13].

Numerous examples of a device-driven public programming exists, including the Brooklyn Museum which hosts a range of applications and an assortment of online content accessed through QR codes[14]. Another example at the Brooklyn Museum where iPads owned by the museum were installed in the gallery for an exhibition: the visitors took part in 12,000 iPad sessions[15]. Another cultural institution using similar methods is the Jacksonville Zoo, which hosts an educational application for children as young as six. Patrons are encouraged to use it during a visit, or offsite[16].

Museums are engaging visitors offsite though online content, including games and blogs. One example is the Rosenbach Museum and Library in Philadelphia whose program, *21st Century Abe,* encouraged visitors to sign on and upload "found objects" that they related with the president. Aiming to create a dialogue that was engaging and

[11] (Adair, Filene, Koloski, 2011)
[12] (Tallon, 2008)
[13] (Tallon, 2008)
[14] (Bernstein, 2011)
[15] (Bernstein, 2011)
[16] (http://news.ufl.edu, 2011)

inclusive the website hosted artistic interpretations, scholars' analysis and the visitor uploaded content[17]. These tools' have a unique ability to provide a more interactive experience and can be cost effective, making them available for organizations of all sizes[18]. If used effectively, these platforms can deepen relationships with visitors and help to reach strategic goals[19].

Cultural institutions embraced a new era, integrating technology by digitizing their collections and optimizing their administration[20]. For curators "valuation, cataloging, digital asset management," including virtual copies of artifacts, are all valuable applications[21]. Within the administrative framework, technology has become significant in data management, development work, financial record keeping and marketing efforts. For technology support The Nonprofit Technology Network (NTEN), host local and regional events; teaching best practices of technology implementation[22]. The group Idealware provides workshops on specific applications like mobile apps, website analytics, graphic design and donor management tools[23].

Technology and the User

A visitor's current relationship with technology acts as a gateway for them to develop deeper connections with the organization by transferring this connection, and

[17] (Adair, Filene, Koloski, 2011)
[18] (Tallon, 2008)
[19] (Adair, Filene, Koloski, 2011)
[20] (Koukopolus, Lazarinis, 2011)
[21] (Koukopolus, Lazarinis, 2011)
[22] (NTEN.org, 2011)
[23] (Idealware.org, 2011)

building on their own personal interpretation of the content[24]. The American Association of Museums' Interpretation Study states that museums should define interpretation as a means to deliver content through the "process of communication between museum and audience."[25] When included in numerous areas of interaction, from an exhibition to the museum's website, it can deepen the engagement of the visitor[26]. By making the exchange more interactive, removing barriers and encouraging visitors to explore their own interpretation of museum collections, it co-creates meaning within their experience[27].

Program managers must be cognizant that visitors want to be "given options, make choices, become involved, and ultimately be active participants in the experience."[28] Individual visitors enter the museum with their own expectations and social backgrounds, including different levels of learning, knowledge and understanding of the content[29]. Technology-based programs allow for the content presented to be as unique as the visitors, making the interaction more personal. This personal relationship between the content and the visitor, can allow for deeper engagement with the organization in "terms of time, money, and intellect."[30]

[24] (Tallon, 2008)
[25] (Black, 2005)
[26] (Black, 2005)
[27] (Adair, Filene, Koloski, 2011)
[28] (Thomas, Mintz, 1998)
[29] (Tallon, 1998)
[30] (Adair, Filene, Koloski, 2011)

Managing Technology in Organizations

Institutions should grow with emerging technologies that have given life to the new methods of visitor engagement[31]. In order for it to be meaningful, organizations must decide where technology and mission align[32]. According to NTEN there are five stages in managing technology, shown below in Figure 1; knowing where an organization currently resides can increase alignment[33].

Based on NTEN's descriptions, *Chaotic* organizations are not using technology effectively and cannot keep up with existing problems. As indicated by the arrows they need to leverage their current tools before moving forward. *Reactive* stage groups, do not use long term planning to determine their needs, making effective options more difficult to assess[34]. The groups from *Proactive* to *Value* are better able to manage technology-based programs because they have systems, policies and practices in place[35]. *Service* and *Value* groups understand how to use technology inside and outside their organization. *Value* stage groups have an understanding of to use it to generate revenue and use IT metrics to implement change[36]. This shows that infrastructure to support technology helps aide success.

[31] (Koukopolus, Lazarinis, 2011)
[32] (Podolsky,2003; Ross, Verclas, Levine 2009)
[33] (Ross, Verclas, Levine, 2009)
[34] (Ross, Verclas, Levine, 2009)
[35] (Ross, Verclas, Levine 2009)
[36] (Ross, Verclas, Levine, 2009)

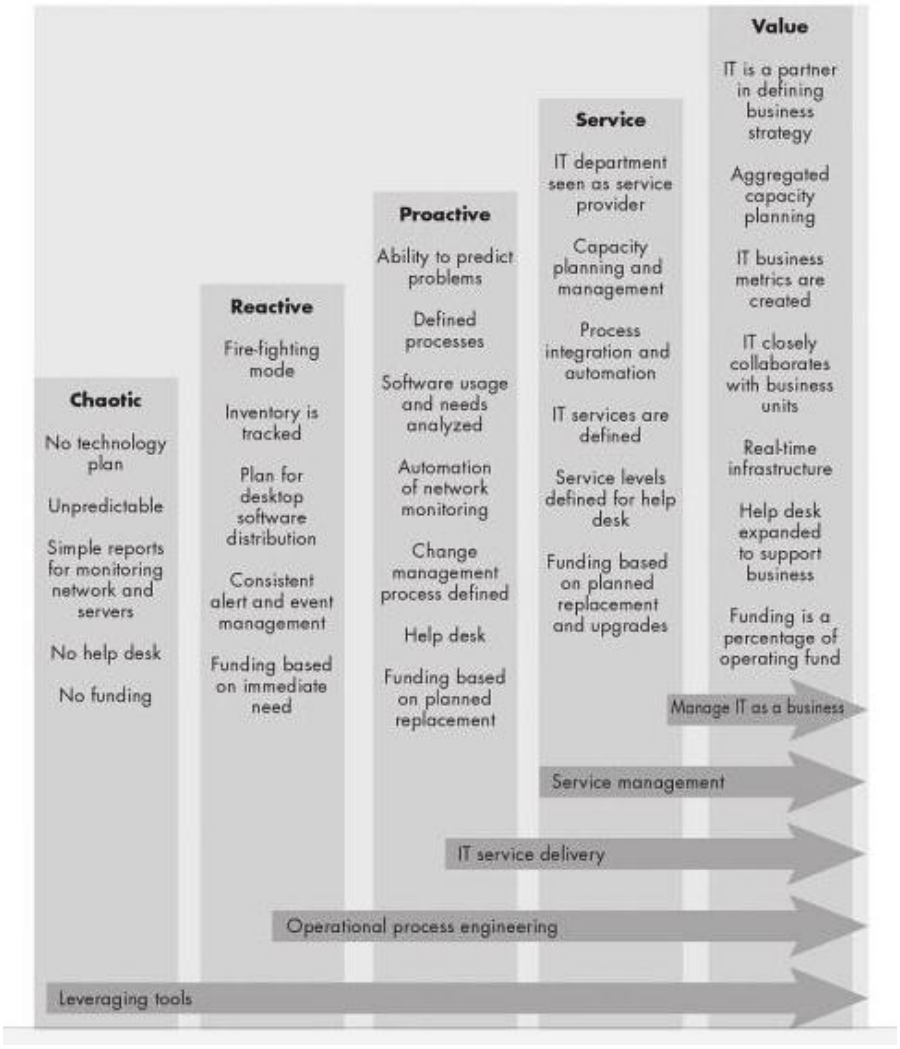

Figure 1: The Five Stages of Nonprofit Technology[37]

[37] (Ross, Levine, Verclas, 2009)

HYPOTHESIS

Management needs to understand the challenges of integrating technology and this requires a process of strategic analysis[38]. Strategic management techniques specifically initial goals, involvement of end-users, evaluation methods, staff roles and the attitude of leadership influence the level of success a program can achieve.

LIMITS OF PRIOR RESEARCH

Within published material there is a focus on planning and installation of public programs. Due to the rapid pace of technology's growth the focus on technological devices relevant at the time of publication often makes materials quickly obsolete. This marks an inability to have a lasting effect on program management strategy. The more enduring contribution will be an understanding of the human affect of managing technology and how that effects the success of pubic programs.

METHODOLOGY

To have the most complete understanding of what shared methods and actions contribute to the success of these programs, interviews were conducted with managers of six award-winning programs. Program managers have the most direct influence during the planning, execution and evaluation of the program. Their shared knowledge and skills of administering technology-based programs will form a collective understanding of

[38] (Thomas, Mintz, 131)

common strategies in the field. Optionally, other staff members involved with the administration of the program were included in interviews. Understanding the role of all staff members in program administration is beyond the scope of this study, but warrants further insight.

For the purpose of this study, cases were identified through the American Association of Museums' MUSE Awards. Programs were deemed as "demonstrating outstanding achievement" in technology-based program design, allowing for a standard of success to be set[39]. There are a number of categories including Applications & API's, Audio Tours and Podcasts and Digital Communications, the full list is in appendix A[40]. For each category Gold, Silver or Bronze awards are given. Judging criteria includes content, quality of work, and appropriate or innovative use of technology; more are listed in appendix B[41]. Judges include a jury of professionals from both the media and museums, who possess an expertise in "programming, production, and subject content."[42]

Two of the six interviews were conducted in person and all others were recorded over the telephone; recordings were by given permission and used for transcription purposes. Interview discussion topics were chosen based on the prior review of literature and program management studies. After synthesizing the data results were narrowed into the most relevant topics. Questions were written to understand the application of management techniques to technology, and providing insight into how they relate to programmatic success.

[39] (American Association of Museums, 2011)
[40] (American Association of Museums, 2011)
[41] (American Association of Museums, 2011)
[42] (American Association of Museums, 2011)

Along with the interviews, organizational documentation of the program was studied including award entries, annual reports and other insightful pieces. Once all interviews were conducted and transcribed, quotes were studied for similarities in language and ideas. Those groups that demonstrated unique answers were labeled as exceptions to the general findings.

Results were presented to experts in the field based on their relative experience. They were given a synopsis of the findings and questioned on their validity, meaning to the sector and how they were interrelated. Based on their knowledge of public programming implementation and understanding of management theory, these experts shed light on the meaning of the results.

This study was conducted according to ethical standards and best practices of research. Prior to all interviews, confidentiality of the information was addressed and responses of the managers was noted

WHY THIS MATTERS TO THE FIELD

This study aims to show that technology when managed thoughtfully with strategic techniques creates successful programs within museums. Considering the rapid rate of technology's integration into the museums of all sizes, managers need to understand techniques to manage it well, providing insight into program design and administration.

INTRODUCTION OF CASE STUDIES

The following MUSE Award winning organizations were used in this study:

1. Balboa Park Online Collaborative, San Diego, CA
    a. 2011 MUSE Award- Silver for Games and Augmented Realty
2. Indianapolis Museum of Art, Indianapolis, IN
    a. 2009 MUSE Award- Gold for Online Presence
3. Museum of Modern Art, New York, NY
    a. 2011 MUSE Award- Gold for Apps and APIs
4. National Museum of American Jewish History, Philadelphia, PA
    a. 2011 MUSE Award- Bronze for Interpretive Interactive Installations
5. National World War II Museum, New Orleans, LA
    a. 2012 MUSE Award- Gold for Multi-Media Installations
6. New England Aquarium, Boston, MA
    a. 2010 MUSE Award- Silver for Audio and Visual

Balboa Park Online Collaborative, San Diego, CA

The Balboa Park Online Collaborative (BPOC), is a "consortium of cultural institutions" located in Balboa Park, a 1,200 acre park in San Diego, CA[43]. BPOC's mission states:

> *"Facilitate and execute a fundamental change in the way museums, cultural arts and science institutions in Balboa Park approach the use of online technology by making online technology an integral part of the way the institutions fulfill their missions, interact with patrons, and collaborate; Improve their technology capabilities while reducing costs by bringing organizations with similar needs together on mutually beneficial projects; and to Allow smaller institutions the benefit of having technology systems of the same quality as larger organizations, who in turn benefit from streamlined expenditures."*[44]

BPOC activities include launching websites, creating a park wide wi-fi network, and helping to digitize museums' collections. BPOC offers IT support to its members,

[43] (Balboa Park Online Collaborative Press Release, 2010)
[44] (Balboa Park Online Collaborative, 2012)

including online marketing and mobile app development. At the time of this study it had 26 nonprofit museums as members.

In November of 2010, BPOC launched *Giskin Anomaly*, a game played with a working cell phone by visitors. By calling the number found on the "anomaly detectors," which are bright orange stakes throughout the park, visitors listen to a dialogue between two characters, leading them to the next clue and detector. All stakes are located outside of cultural institutions, making the game free and accessible[45]. The content highlights the history of Balboa Park during World War II; leading visitors to significant park locations.

The interactive narrative was a winner of a Silver MUSE Award in 2011 in the Games and Augmented Reality category; judges noted the use of basic technology allowed for greater visitor participation. They also made note of the quality of graphics and use of the entire park. For this study an interview was conducted with Rich Cherry, the Executive Director of BPOC and Maren Dougherty, Senior Editor.

Indianapolis Museum of Art, Indianapolis IN

The Indianapolis Museum of Art (IMA) was founded in 1883 and in 1906 the museum opened its brick and mortar doors after a generous bequest. Currently IMA spans over a 152 acre complex, with 125 acres of open gardens[46]. The mission states:

"The Indianapolis Museum of Art serves the creative interests of its communities by fostering exploration of art, design, and the natural environment. The IMA promotes these interests through the collection, presentation, interpretation and conservation of its artistic, historic, and environmental assets."[47]

[45] (Stetz, 2010)
[46] (Indianapolis Museum of Art, 2012)
[47] (Indianapolis Museum of Art, 2012)

IMA holds more than 150,000 pieces its collection, including outdoor installations. According to its online dashboard of museum statistics, IMA hosted over 400,000 visitors in 2010, along with 27,000 students participating in education programs.[48]

In 2009, IMA launched the online forum ArtBabble.org as a online video library where dialogue surrounding the content can take place by users[49]. Originally funded by a $50,000 grant from the Ball Brothers Foundation, the website hosts high definition videos from both IMA and now numerous partner museums. A number of international museums are partners, who maintain a collection of videos on the site; all of which are tagged and cataloged. The website was designed by developers on the museum staff at IMA, building the entire project in house[50].

In 2009 IMA received a Gold MUSE award in the Online Presence category; judges noted the "quirky and memorable design, potential for growth," and an emphasis on "audience sharing, community and engagement" through institutional collaborations[51]. For this study, Emily Painter the Media Project Coordinator was interviewed.

Museum of Modern Art, New York, NY

The Museum of Modern Art, (MoMA) was founded in 1929, in New York City, by influential arts patrons responding to "a need to challenge the conservative policies of traditional museums and to establish an institution devoted exclusively to modern art." (Museum of Modern Art, 2012) MoMA 's mission states:

"The Museum of Modern Art is a place that fuels creativity, ignites minds, and provides

[48] (Indianapolis Museum of Art, 2012)
[49] (Indianapolis Museum of Art, 2012)
[50] Emily Painter, interview by author, January 20,2012.
[51] (American Association of Museums, 2012)

inspiration. With extraordinary exhibitions and the world's finest collection of modern and contemporary art, MoMA is dedicated to the conversation between the past and the present, the established and the experimental. Our mission is helping you understand and enjoy the art of our time."[52]

Currently MoMA's collection includes over 120,000 works of art, 22,000 films and a research facility housing over 300,000 texts[53]. In 2009 MoMA launched the Ab Ex Ny App free for the Apple tablet, the iPad[54]. This was created in conjunction with the Abstract Expressionist New York exhibition that ran from October 2010 through April 2011 on the 4th floor of MoMA's Midtown Manhattan building. The app itself included selected images, a multimedia map of related points of interest, in-depth videos on artist and important works in the collection. The app also provided a list of related visual art terminology, information on the exhibition itself and the ability share to favorite pieces on social media[55].

MoMA received the 2011 Gold MUSE award for Apps and API's; judges said the app both deepened the exhibition experience for onsite visitors and provided an experience for virtual users. Useful details like bookmarking, social sharing, and an event calendar coupled with the branded design made the app an "extended audience development opportunity."[56]

[52] (Museum of Modern Art, 2012)
[53] (Museum of Modern Art, 2012)
[54] Allegra Burnett, interview by author, January 23, 2012.
[55] (American Association of Museums, 2012)
[56] (American Association of Museums, 2012)

National Museum of American Jewish History, Philadelphia, PA

The National Museum of American Jewish History was established in 1976 in Philadelphia, Pennsylvania. As the "largest collection of Jewish Americana," the museum is home to over 25,000 objects[57]. The mission states:

"The National Museum of American Jewish History's mission is to present educational programs and experiences that preserve, explore and celebrate the history of Jews in America. Our purpose is to connect Jews more closely to their heritage and to inspire in people of all backgrounds a greater appreciation for the diversity of the American Jewish experience and the freedoms to which Americans aspire."[58]

When the museum moved into a new building the NMAJH launched the interactive exhibit the Contemporary Issues Forum. The exhibition itself consists of a rounded room, in which four questions are projected onto the walls. In the center lies a table that holds speech bubble shaped post it notes reading "Yes," "No," and "Um," along with numerous felt pens. Next to each question is small scanner that visitors can use to scan their responses, which immediately appear online. Subsequently visitors are captured on video giving responses that are also projected over the notes stuck to the wall. Finally there is a computer set in the wall, with access to the online portion of the forum in real time.

CIF received a Bronze MUSE award for Interpretive Interactive Installation in 2011. Judges from AAM said the exhibit gave a "fresh, technological twist" to a well known "post it note forum." Judges were impressed by the "beautifully executed use of

[57] (National Museum of American Jewish History, 2012)
[58] (National Museum of American Jewish History, 2012)

technology" that gave dialogue a new "permanence and substance in a meaningful way."[59]

National World War II Museum, New Orleans, LA

The National World War II Museum in New Orleans, LA was founded in 2006 by educator and author Stephen Ambrose[60]. The mission of the museum states:

"tell[s] the story of the American Experience in the war that changed the world - why it was fought, how it was won, and what it means today - so that all generations will understand the price of freedom and be inspired by what they learn."[61]

Beginning 2005, the museum began "The Road to Victory," a $300 Million capital campaign for a large expansion of the campus. Initial improvements opened in 2006, and at least one new facility will open every twelve to eighteen months until 2015[62]. Included in the 2009 grand openings was the Solomon Victory Theater which seats 250 guests, and offers an "experience unlike anything else on the planet."[63] Specifically built to house a 120-foot wide screen, the theater is home to the MUSE Award winning film *Beyond All Boundaries.*

Using technology used by Universal Studios, the museum presents the story of World War II through the memories of veterans[64]. Working with executive producer Tom Hanks, the Hettema Group (who specializes in designing immersive experiences), and over 400 others, the film is a multi sensory experience[65]. Visitors feel "the rumble of B-

[59] (American Association of Museums, 2012)
[60] (National World War II Museum, 2012)
[61] (National World War II Museum, 2012)
[62] Paul Parrie, interview by author, January 16, 2012.
[63] (National World War II Museum, 2012)
[64] (National World War II Museum, 2012)
[65] (National World War II Museum, 2012)

17 bombers, steam rising from the jungles of Guadalcanal, and snow falling inside the theater during the punishing Battle of the Bulge." [66]

The film received a 2012 Gold MUSE Award for Multi-Media Installations; judges stated that the film provided an "unprecedented experience for the audience," and that it created a completely new museum experience[67].

New England Aquarium, Boston, MA

The New England Aquarium (NEAQ) was founded in Boston, Massachutes in 1969 opening to more than 12,000 visitors the first day. Today the aquarium hosts more than 1.3 million visitors a year. Over time the aquarium expanded its animal care facility, including a Boston Harbor Science Cruise, has highly regarded teen and women in science public programs. The mission of the aquarium states:

"We strive to:

- *Instill a sense of wonder about the beauty of the world's oceans and the life that thrives within them*
- *Be a gateway between Central Wharf and the oceans*
- *Turn visitors into explorers, and create the next generation of ocean stewards*
- *Collaborate to develop new solutions to protect the oceans and balance humanity's impact on them*
- *Build widespread awareness of the need to live blue™"*[68]

In 2010 the New England Aquarium won a silver MUSE Award in the Audio & Visual category for the NEAQ Insider and Blue Impact video tours. NEAQ Insider is available for download to any mobile device. The content reflects a behind the scenes look at the aquarium and its animals. *Blue Impact* was a second, 8-10 episode, video tour that is centered on the aquarium's conservation efforts. They are available in English, Spanish, Portuguese and Hearing Impaired versions.

[66] (American Association of Museums, 2012)
[67] (American Association of Museums, 2012)
[68] (New England Aquarium, 2012)

Judges stated the tours are remarkable for their emphasis on education and research; their content gives a "close up focus on global issues and encourages reflection."[69] In addition, they noted the ability of the tours to be downloaded to multiple platforms and the availability of different languages aiding towards the goal of expanding accessibility[70].

Order of Findings

1. Initial Goals
2. User Involvement
3. Evaluation Methods
4. Staff Role in the Initial Design
5. Staff Role in Day to Day Management
6. Attitude of Leadership

INITIAL GOALS

When setting goals for success technology-based programs often lean toward participatory actions and outcomes; creating clear goals gives a shared vision for the program and the institution[71]. Often generalized these goals can relate to visitor engagement, education, relationship building or entertainment. The hypothesis that if initial goals align with organizational goals, including mission, the program will be better supported by infrastructure aiding success. Evidence collection included questions about what goals were established, how they were measured, if appropriate grant deliverables, and if the program manager felt they were met. A comparison of stated goals was compared to the language of each organization's mission to measure alignment.

[69] (American Association of Museums, 2012)
[70] (American Association of Museums, 2012)
[71] (Simon, 2010)

General Findings

When questioned about the initial goals of the programs, 100% of respondents reported qualitative goals based heavily in audience engagement and sharing content. Zero of the six managers reported the use of quantitative goals.

When the language of set goals were compared to that of each organization's mission, it was found that goals were likely to directly relate toward mission fulfillment and were grounded in overall strategic goals.

The Balboa Park Online Collaborative (BPOC) stated its initial goals for the program included building a model of a simple "game" that their constituents, the museums community, could learn from. They wanted to show that high quality work with technology could be simple and achievable.[72] These relate directly to their mission of "bringing organizations with similar needs together on mutually beneficial projects." Giskin Anomaly was a project that used the expertise of various museum professionals and acted as a collaborative program to engage patrons of the park, mutually benefiting the entire museum community in Balboa Park[73].

The Indianapolis Museum of Art initially created ArtBabble as a program to host high quality video that it was producing. Its goal to recruit new partners focused on building a video collection that could be indexed and shared for a larger audience; creating more accessibility and a deeper understanding[74]. The program manager stated that its goals "perfectly aligned with IMA's mission," which strives to promote the

[72] Rich Cherry, interview by author, San Diego, CA, December 19,2011.
[73] (Balboa Park Online Collaborative, 2012)

"exploration of art, design" through "collection, presentation and interpretation."[75] ArtBabble's ability to index a descriptive library of art and design related media goals directly relates as an innovative take on the collection and presentation of art.

As one part of a large capitol campaign, the National World War II Museum (NWWIIM) wanted *Beyond All Boundaries* to create an exhibit where not only could visitors "come away with an overall knowledge of World War II, and what caused the battles," but "people could be introspective, focus on World War II and the story of the soldiers." These goals are a conceptual vision of its mission, which strives to "tell the story of the American Experience…why it was fought, and how it was won, and what it means today."[76]

Finally, the New England Aquarium's two different mobile tours were built with the goals to "deepen the visitor experience – by providing visitors with guidance on what to look for in exhibits, and more in-depth science content," "make the invisible, Aquarium visible," and to "increase access – by offering content in multiple formats and languages, to in-person and virtual visitors."[77] The mobile video tours, especially the Blue Impact tour, focuses on its mission to "build widespread awareness of the need to *Live Blue*™."[78] Tours aid the mission through increasing awareness with accessibility and by using the program as a way to promote the *Live Blue* initiative[79].

[75] (Indianapolis Museum of Art, 2011)
[76] (National World War II Museum, 2012)
[77] (NEAQ Muse Entry, 2009)
[78] (New England Aquarium, 2012)
[79] Rebekah Stendahl, interview by author, February 6, 2012.

These examples in which the programs' initial goals align with the mission of the organization clearly are the most popular approach. Understanding how these goals relate to success and if it is specific to technology can be discovered by questioning experts who's opinions are shaping the future of program design. Bill Adair[80], from The Pew Center for Arts & Heritage and a collaborating editor of *Letting Go?*, and Ron Evans[81], Executive Director of *Group of Minds* were consulted.

According to Adair managers should use a combination of both quantitative and qualitative measurements. He stated that measurable figures do more than measure "how many came," it can measure intrinsic variables such as "how many changed their attitude." Thinking about using quantitative data to measure qualitative impact is something to consider when setting initial goals. Adair believes that the institutions should rigorously but thoughtfully conduct both types of evaluation. Evans agreed stating that groups should find creative ways to measure their impact.

These types of goals build capacity in the field by making experiences that can be duplicated. Adair felt that organizations' use of initial qualitative goals informs the thoughtful integration of technology. Evans agreed noting that either type of research is applicable to the thoughtful integration of technology. Both experts believe that when technology is used with the visitor in mind it is likely to be more engaging, and the importance of good content can not be understated.

Based on these findings, having qualitative goals is valuable, and using innovative metrics to measure the outcomes can show if the program was a success. This

[80] Bill Adair, interview by author, March 22, 2012.
[81] Ron Evans, email message to author, April 16, 2012.

expansion of program evaluation technique builds an understanding of the complete visitor experience. Organizations should consider setting both types of goals, qualitative or quantitative, and find specific ways to measure them.

USER INVOLVEMENT IN INITIAL DESIGN

Current thinking has shown that when museums are able to involve participants in designing programs, the programs can have more impact[82]. Involving users helps create value for the institution and "taking an audience centered approach to the experiences" by understanding the visitors' needs[83]. In addition, *Letting Go?* says allowing visitors to curate their own experiences, sharing in historical or artistic expertise, makes their relationship with the organization more personal and relevant[84]. The hypothesis was established that successful programs are likely to involve users in their initial design.

General Findings

Five of the six program managers responded that no users were involved in the initial design of their program. These five programs choose instead to rely on internal knowledge of their content and of building user experiences. Consistently managers showed interest in the idea of user involvement but did not allocate time or resources to do so. Two of the six managers noted that their organization had undertaken museum wide research into visitor's experiences but were not program specific.

[82] (Simon, 2010)
[83] (Simon, 2010)
[84] (Adair, Filene, Koloski, 2011)

The Museum of Modern Art noted that in the creation of the *Ab Ex Ny* iPad App it was short on the resources of time. She said that "preferably they would have showed the app to visitors in the gallery," but were not able to undertake that type of research in the time allowed to complete the application. When the Indianapolis Museum of Art created ArtBabble it did no initial user evaluation, and did not work with an evaluator until six months into the project. The program manager said that officially there is still not a collection of user feedback. Similarly the New England Aquarium said it would liked to have conducted tests prior to the launch of their tours but had essentially finished the product, making user feedback slightly irrelevant. However, the Aquarium was one group that undertook institution-wide research.

These groups all shared similar attitudes toward user testing: understanding the insight it would provide, but not allocating enough resources to conduct it.

Exceptions to the General Findings

The National Museum of American Jewish History', an exception in the results, conducted more than one level of user interaction research and development on its Contemporary Issues Forum[85]. Perelman described the research in two parts: hyper-low-tech and high-tech. The hyper-low-tech version consisted of "around $100 of materials" from an office supply store including white boards, post its and pens. This information informed museum staff that the interaction was simple and easy; saying visitors "got it." After the museum moved into a new building, user testing continued with a high-tech version. Beginning with one of the final four walls, it tested the scanning element and the

[85] Josh Perelman, Ph.D., interview by author, January 23, 2012.

website. The entire process took between 18-24 months. Importantly, Perelman noted that the museum was able to conduct such extensive user testing because of available financial resources and time, which had both been included in the planning of the program.

Based on these findings it is clear that, despite the encouragement of thought leaders, museums have not fully incorporated user testing into program design. While most of the program managers interviewed were open to the idea and knowledgeable of the benefit, they did not allocate the proper financial or personnel resources. In order to better understand these findings author Nina Simon[86] and engagement expert Ron Evans were consulted.

Simon stated that the involvement of users in the initial design is "always better" to have than to not have. Often financial and staff resources are not dedicated to implementing user testing because the culture of the organization does see it as a priority according to Simon. Currently a culture of visitor research has started to take place in a number of institutions, not only around technology but the entire visitor experiences. As Simon states in *The Participatory Museum*, involving users will "require a radical shift in thinking about the audience," and their experiences should guide professional practice and research within institutions. She concluded the interview by stating that this shift in visitor research is changing the whole field, not just in those programs that utilize technology. This kind of research is allowing groups to find deeper meaning in their work, and organizations should be paying attention to it. Expert Evans agreed stating that

[86] Nina Simon, interview by author, March 13, 2012.

unless the project is a "game-changing innovation," consulting users can gain stakeholder buy-in and bring insight into the process.

Based on the findings even the most accomplished groups are not utilizing the tools that experts think will change the entire relationship between visitors and museums. There is a discrepancy between organizational practice and the future role of visitors' involvement in program design. Noting that most participants in this study mentioned the desire to conduct user involvement research prior to the launch of their programs shows that, like Simon stated, it could be a matter of organizational culture. This leads to the conclusion that organizations should dissect the values of their institutions and then re-evaluate the amount of resources they are willing to dedicate to visitor-based research.

EVALUATION METHODS

Current thinking of program evaluation states that participatory project research requires three parts: setting goals, defining outcomes, and developing meaningful ways to measure them[87]. When evaluation includes user feedback, visitors feel "invested in the project," and want to be involved in its growth[88]. This collection of organized data allows for a museum to learn about its visitors and to examine their relationship with the organization. Data collection can occur in a number of ways: surveys, focus groups, and outside market research[89]. Based on this, a hypothesis was developed that successful programs are more likely to conduct structured methods of evaluation and make changes according to results.

[87] (Simon, 2010)
[88] (Simon, 2010)
[89] (Kotler, Kotler, Kotler, 2008)

General Findings

In general this hypothesis was proven false, with the majority of respondents only using a form of anecdotal feedback. Overall, collection of data was unstructured and often intermittent. For groups that reported tracking any quantitative metrics none used a dedicated schedule or measured their efforts. Most organizations stated that based on the feedback no changes were made to the program's content or design.

The Balboa Park Online Collaborative collected user feedback from recorded comments left by visitors after playing Giskin Anomaly. BPOC sporadically listened to the comments, but only when a marker had been physically moved did staff make actionable changes. The Indianapolis Museum of Art received emails regarding the design and functionality, but no major changes were made to the website. According to Painter, feedback occurred in the comments section, but was underutilized by both visitors and staff.

The Museum of Modern Art lacked formality to its feedback collection methods. When time permited, the manager read the comments posted on social media and checked the number of downloads. Again no changes were made to the Ab Ex NY Application, but MoMA "absorb[ed] the feedback," and plans to use the information in the future. The New England Aquarium attempted to conduct post-experience interviews, but lacked capacity to reach the high volume of visitors. Comments from the visitors they were able to interview were, like MoMA's, was absorbed but no changes were made to the tours. The National World War II Museum learned about the patron's experience through conversations at the museum's café, where Parrie eats his lunch about once a

week, using the time to engage visitors. One technical change was made to NWWIIM's film after numerous comments said that the volume was too loud.

Exceptions to the General Findings

With a small deviation, the Indianapolis Museum of Art did collect feedback from the partners of ArtBabble. Painter often collects comments from partner museums about the websites features and possible improvements. ArtBabble's partner museums are not considered an end user by the definition of this study, however this shows what evaluation methods were in use.

In general program evaluation had two themes: unstructured methods of data collection and how they responded to the feedback. Data collection consisted of mostly anecdotal evidence that led to minimal or no changes. Paul Parrie from the National World War II Museum noted that he was more likely to respond to trends in visitor's experiences rather than "knee-jerk reactions." This finding demonstrates how programmatic evaluation is being conducted but how this methodology relates to the technology is unclear. An expert in museum evaluation, Professor Beth Tinker[90] from the University of the Arts in Philadelphia, PA, was consulted to better understand this trend.

When questioned about why organizations would not conduct formal evaluation Tinker claimed it was most likely to do a lack of institutional priority. Stating that it was not a priority of leadership, program managers were less likely to conduct formative or summative evaluation themselves. Often times coupled with manager's lack of familiarity about how to conduct formal evaluation the task seem daunting, expensive and time consuming. Organizational priority paired with a lack of knowledge leads to a

[90] Beth Tinker, interview by author, Philadelphia, PA, March 14, 2012.

lack of understanding the program's effect, leaving helpful information undiscovered. When asked what kind of motivation groups needed in order to learn then conduct formal evaluation, Tinker again reprised that institutional priority and funding requirements were the best motivators. Finally, Tinker responded to the unstructured methods being used saying that it "is not evaluation," and then added that it "included bias and was of no statistical significance."

In agreement with Bill Adair and Nina Simon, Tinker noted there are ways to measure qualitative ideas. Using formalized methods and tools such as surveys and questionnaires provides feedback with statistical significance and allows for a more realistic understanding of the programs impact.

Overall the managers in this study were not conducting evaluation that was of statistical significance and without bias, which evades an honest understanding of the programs' impact. Conducting more formal evaluations of the programs could lead to better programmatic design. However, this must be a priority in the organization not just a one off for program managers.

STAFF AND VENDOR ROLES IN THE INITIAL DESIGN

While conducting this research the importance of the relationship between organizational staff and the vendor came to light. This led to an initial hypothesis that programs had a larger amount of initial work and were less reliant on ongoing support. This hypothesis has been broken up into two sections: the staff's role in the initial design and their day-to-day management of the program. Questions of staff roles in the initial design focused on their relationships with outside vendors.

General Findings

Through data collected in interviews, the roles and duties were defined as follows:

1- Marketing for Program
   Marketing includes social media, advertising and recruiting users
2- Creation of the Content
   Creating, editing or writing the material; including fact checking
3- Physical Design of the Program
   Designing how the program appears in the space of the museum, and general creative lead on the digital design.
4- Technical Production
   Creating or building the actual technology used including but not limited to web design, recordings, and video production.

All six participants gave internal staff the role of marketing for the program; marketing strategy and tools varied throughout the study. Five of the six participants had their staff take on the role of creation of the content. Only 50% of participants interviewed gave internal staff the role of the physical design of the program. Finally, the role of technical production was undertaken by only one of the six organizations studied.

These findings are related to the roles delegated to an outside vendor. While all programs needed for all four roles, those roles not undertaken by internal staff were passed onto a vendor. The exploration of the most effective relationship between organizations and vendors is beyond the scope of this study.

The Museum of Modern Art funded the *Ab Ex Ny* App from the marketing budget for the corresponding exhibition, utilizing its marketing materials and taking advantage of its large social media to market the app. They noted that "good reviews," and a "less saturated market" increased their ability to market the app successfully. MoMA staff was also responsible for the role of content creation, which was divided into text content management and image content management. Working mostly with existing material,

numerous other departments acted as a sounding board for the content's accuracy. The vendor took on the role of physical design of the program as well as technical production.

Similar to MoMA, the National World War II Museum took on the role of marketing for Beyond All Boundaries, and the role of creation of content for the film. At the time of production NWWIIM had 80 employees; of these the historians from the museum were responsible for "checking the script" for historical accuracy. Producer Tom Hanks, and 500 other individuals, were responsible for the physical design and technical production. A role unique in this study at the NWWIIM, was the capitol campaign under which the program was positioned; including the construction of the theater and its integrated technology, (which was also done by outside vendors), and fundraising.

A final example is the New England Aquarium's where the staff also took on the roles of marketing the program and creation of content. The vendor took on the roles of physical design of the program and technical production. A team of various staff members from across the organization "came up with the top stories to tell" and passed those onto the vendor, who both framed the stories and filmed the actual footage. These three examples describe the most likely scenario of staff roles found in this study.

Exceptions to the General Findings

The exceptions in this specific finding all differed not only from the general findings, but also from one another. The Balboa Park Online Collaborative, the smallest organization in this study with a staff of 14, outsourced more of the roles than any other organization. After conceptualizing the idea for Giskin Anomaly, BPOC took on the role of marketing of the program and attained proper permits. Its vendor took on the creation of content, physical design of the program and technical production; this was more than

any other vendor in this study. These results can likely be attributed to the structure of the BPOC, which does not have content experts on staff, limiting the strategic abilities needed to fulfill the role of creation of content.

A second group that differed was the Indianapolis Museum of Art, which took on all four roles of the initial design process. Its staff implemented the marketing for the program and the creation of content but, unique in this study, their staff was also responsible for the roles of physical design and technical production. They were able to do so because of a team of in-house web design experts.

The lesson shown in these findings is an understanding of strengths and weaknesses. All of the organizations in this study assigned staff roles around expertise that existed within their organization's infrastructure. Understanding what staff is able to accomplish successfully, and what roles are better farmed out to expert vendors allows for the best delegation of roles. To better understand how these findings relate to the management of the program and how this affects the role of the vendor, John Kenyon[91], Nonprofit Technology Strategist at NTEN was consulted.

The relationship between the vendor and staff members, the division of roles and ability to work together successfully, comes from a strategic conversation and an agile process of check-ins according to Kenyon. He agreed that those in this study demonstrate the most common division of work currently in the sector; noting that groups should lay out clear deadlines and responsibilities in the contracting phase. In order to ensure positive vendor-staff relationships museums should conduct due-diligence, both

[91] John Kenyon, interview by author, April 16, 2012.

internally and with the vendor. Staff can play an important role in the design of a new program, even when an outside vendor is contracted for technology implementation.

STAFF'S DAY-TO-DAY MANAGEMENT

The previous section raised questions about how time was spent by management and the strategies used related to the integration of technology. This resulted in a new hypothesis that successful programs have a larger amount of initial work and require less daily management once launched. Program managers were questioned about their specific tasks, and time spent in their work-day specific to the project.

General Findings

Results showed that four out of the six managers only did routine maintenance for the program that included but was not limited to "updating links," "distributing rack cards," and "paying the phone bill." These tasks were said to have taken up very little time during a single day or over time. Managers noted that their time was much more consumed when the program was in the initial phases of design and launching, but once it was under-way there was very little up keep, making their management minimal.

The Balboa Park Online Collaborative showed the least amount of post-launch time consumption, stating that they listened to some of the user responses. BPOC added that "once and while" they have to relocated the game piece after a visitor moved it. However, their management was nominal and did not consume staff time.

Similar to BPOC, Allegra Burnett from MoMA stated that "there isn't really that much" to do in maintaining their iPad application. She keeps track of downloads, reads some user feedback, and updates links as needed. The New England Aquarium also

stated that there is “not much” by way of day-to-day management of their video tours, noting that they “really don’t involve any maintenance.” Staff time has been spent mildly on re-purposing the tours to be used offsite for teachers, but this did not create a new set of duties for the program manager.

Exceptions to the General Findings

Within this section there were two exceptions, the higher deviation belonging to the Indianapolis Museum of Art. ArtBabble continues to expand its group of collaborating museums, requiring more staff time. Painter spends time conducting social media campaigns for the site, negotiating contracts with potential partners, which is anywhere from two to ten museums at a time. She specified spending from 10-20 hours a week on ArtBabble alone, which can increase depending on the timeline of launching new partners. IMA has a unique position in this study because of more staff time dedicated to the initial design and post-launch.

The National Museum of American Jewish History had a smaller deviation, spending staff time on replacing old content with new, time sensitive content. The museum involves a number of staff members when designing a new question for the Contemporary Issues Forum; using different expertise to find the most effective phrasing and poignancy. Perelman stated that this takes “10-15 minutes per day” on average, and replacing pens and answer cards costs minimal staff time.

The larger picture of these findings is that these technology based public programs, once launched, require less staff time and can be maintained over time with fewer resources. It is questionable as to whether this is due to the nature of technology or smart program design. In order to better understand the relationship between staff’s day-

to-day management to technology, John Kenyon, Nonprofit Technology Strategist at NTEN, and author Nina Simon were consulted.

Simon stated that overall work time should be slightly less because of the technology but there should be an operational plan in place. Depending on the amount of visitor interaction there should be a plan for the "care and feeding" of the program. She dismissed the idea that technology projects are completed once they are launched; saying they are more like "planting gardens," they need nurturing as they grow and change. Kenyon stated more formally that organizations which"take an upfront approach and plan" for future maintenance have a better understanding of the capacity needed for it. A plan should include maintaining both content and technology, according to Kenyon.

Overall the lack of staff time shown in the research results has no solid conclusion for this trend. The nature of technology often times lends itself to being easily maintained but this requires planning and foresight. It is unclear if these groups understood the capacity needed for the future or chose to use specific technology that required little upkeep. Either way the relatively small daily allowance of time creates the ability for similar programs to be instituted in the future.

ATTITUDES OF LEADERSHIP

In the study of leadership, Peter Drucker states that a "lessons for the leaders of a non-profit is that one has to grow with success"[92] demonstrating that with success comes change. Organizational leaders often set examples of behaviors and reflect institutional

[92] (Drucker, 1990)

priorities through their own views[93]. From these concepts emerged the hypothesis that organizations, whose leaders are supportive of technology and risk-taking, are more likely to have programmatic success. This hypothesis was explored through questions of financial support, professional development opportunities and general attitudes of leaderships.

General Findings

Overall the hypothesis was proven true, with five out of six managers responding that leadership was supportive of taking risks in using technology in the organization. The remaining exception seemed positive about leadership's attitude was changing, opening up to integrating technology.

The outstanding example of leadership embracing risk-taking and technology in this study was the Indianapolis Museum of Art. After using their internal web development team to conceptualize and build ArtBabble, they found their skills to be an unrealized generator of earned income. After the completion of the project IMA launched the IMA Lab, a web development team similar to a "boutique web company" which operates completely within the museum's structure. Its customers include local businesses and other non-profit organizations. This venture demonstrates initiative and innovative thinking by IMA's leadership, noting that this would not have been possible without the creation of ArtBabble.

Allegra Burnett said of leadership at MoMA, they are "interested in trying new things, seeing what works and what doesn't." They prefer to be on the "forefront" of new

[93] (Byrnes, 2009)

technology and how it can be used to educate. The Executive Director of MoMA, Glenn Lowry[94], said they are a "risk seeking institution," and try to create an environment "where people feel comfortable taking intellectual risks." This also applies to using technology to improve visitor experience, "which translates into experimenting and trying out a whole range of ideas, and not worrying too much if they succeed or fail."

Pierre from the National World War II Museum stated that the museum's CEO is "72 years old and he loves technology. Not because it's technology but because he's an educator." The director translates how the museum can leverage this technology to educate visitors to its Board of Directors. The museum's board became supportive of advancements in technology including investing in a technology specific staff of 11, and an interactive media and web development department. A financial investment also was apparent at the National Museum of American Jewish History where Perelman said that when they opened their new space there as "an extremely high [financial] investment in technology" by leadership.

Exception to the General Findings

Slightly outside the findings, the New England Aquarium noted that leadership was not entirely risk-taking. The manager interviewed seemed confident that the integration of technology was happening slowly, including plans for using newer technology in the aquariums largest exhibit.

Based on these findings, it seems the hypothesis was correct. In order to verify these results, expert John Kenyon, Nonprofit Technology Strategist from the NTEN was

[94] Glenn Lowry, interview by author, Philadelphia, PA, March 27, 2012.

consulted. He said that groups whose leaders showed risk-taking initiative were more likely to create successful programs. Citing a study from ZeroDivide.org he spoke of "tech joy," which is when leadership understands the "potential impact technology can have," and are "open to trying new things" allowing for successful experimentation. A way for program managers to encourage leadership is to speak with them in a language of goals and outcomes, not merely highlight the "shiny new features of technology." Kenyon stated that "tech joy" occurs when there is a conceptual understanding of what technology can provide for the visitors.

Based on these findings and an expert opinion, when leadership is supportive of technology for its ability to create better visitor experiences, it creates an environment in which successful programs can be produced. This also applies to leaders positive attitudes toward risk-taking, allowing for an organizational culture to incubate innovative ideas.

LESSONS LEARNED

When program managers were asked what they believed drove their success two concepts emerged: the focus on content and inter-departmental collaboration.

All six managers said focusing on "great content" and not on the bells and whistles of technology was the reason for success. They noted that what really made the program engaging was not necessarily the technology, but what it presented. This supports the initial idea of this study, that technology is not a cure-all element for museums. It is a tool to present the ideas that further the mission of the organization.

Successful programs are likely to be managed by staff that understand this concept, and are thoughtful when integrating technology into their programming.

A second element that emerged was the importance of inter-departmental collaboration. Four out of six program managers noted that the use of multi-department teams was "crucial," or "critical" in the success of their program. When questioned, Kenyon from NTEN agreed, "collaboration is really vital to the success of technology initiatives," and involving the right departments either directly or by proxy cannot be overlooked in the planning process. This relative finding reiterates how organizational culture affects program design. Collaboration within museum administration is necessary for creating successful technology-based programs that are engaging for visitors and meaningful for staff.

CONCLUSION

There are a number of shared management strategies by program managers that contribute to the success of technology-based public programs at museums. They allow for proper development, design and implementation of programs that can achieve organizational goals. These findings indicate how programs are currently being developed and with expert consultation, how they could be improved. The result is that although programmatic success can occur using basic techniques, expert advice should be consulted for the program to realize its full potential.

During the planning phase initial goals should be based in qualitative ideas that aim to further a museum's mission or strategic goals. Program managers should measure these goals with qualitative and quantitative methods of evaluation, making their achievement countable. The involvement of users in the initial design is important according to experts, and can allow for a deeper level of engagement or understanding by the visitor. This element of program design is often limited because organizations fail to make it a priority. The findings in this study show that programs can attain a high level of success without undertaking user involvement, but the experts consulted believed they were missing a chance to deepen relationships and further their mission.

Findings in this study regarding evaluation demonstrated that programs could be successful without the use of formal research. However, again the experts consulted noted that without structured evaluation methods managers are missing a chance to build more engaging programs. Organizations should make conducting evaluation a priority where staff can be involved in the process and learn from the results.

The division of roles between staff and vendors was shown to be important in successfully implementing technology. Based on the findings success comes from having a strategic understanding of organizational strengths and weaknesses, conducting due diligence to find the right vendor then laying out clear roles for both parties. After the program's launch, staff's day-to-day management should be minimized. Experts consulted believe that this can happen when managers plan for maintenance in the initial design and have an operational plan in place. However, they also caution that technology-based programs need nurturing, and managers should not dismiss them once launched.

The attitude of leadership affects all of the above findings; leading to the ultimate success or failure of technology-based programs. The findings show that when leadership values risk-taking with technology organizations will realize success. This attitude sets the priorities and culture within the organization, leading to a more energized and innovative staff. Leaders who are not as risk takers should learn to understand how technology can further the organization's mission and help meet strategic goals, and that there is much more to it than just the bells and whistles.

Finally, the most important finding shown in this study is that there are similar management strategies being used across disciplines and mediums of technology. Based on the commonality within the findings it is evident that managing technology requires strategic thinking and thoughtful integration.

Managers should use the findings of this study as a tool for assessing their own program design strategies. Considering first how their current actions align with those of the managers interviewed then, if changes need to be made, how the advice of the experts consulted can be utilized.

Many questions lie outside the scope of this study, including how to modify an organizational culture to be more open to expert advice. Future research should be conducted to better understand how the nature of technology changes organizations internally and its relationship with the visitor.

Technology will continue to be an important tool in furthering the mission of museums through public programs and institutional development. Understanding how to best manage this tool continues to be an on-going subject for study.

APPENDICES

APPENDIX A: MUSE AWARD CATEGORIES[95]

- Applications & APIs: Digital presentations, applications, and mashups that utilize existing data and online resources to transform content into new meaningful tools or experiences.
- Audio Tours & Podcasts: Entries can range from audio tours on devices to video and audio podcasts that create links between online and/or on-site activities and programs, exhibits, and lectures, creating an augmented and extended experience to a global audience.
- Digital Communities: websites that offer a virtual space for people to share a common experience, exhibit or interest, thereby creating and facilitating an online community. These sites can target either a broad-based or niche audience and contribute to the process of social networking.
- Education & Outreach Projects: that include educational content for children or adults, resources for educators/teachers, "distance learning" courses, pedagogical training tools, and outreach to the community.
- Games & Augmented Reality: Challenging interactive activities that educate, entertain, and may involve competing or role playing. Augmented Reality entries merge the real world environment with digital imagery and interfaces via Q codes, cameras, Tag and more.
- Interactive Kiosks: A single interactive kiosk in a gallery, visitor center or other public space that offers an alternative, visitor-friendly view of information.
- Interpretive Interactive Installations: Multiple kiosks or full gallery installations that require input from visitors to accommodate an educational and entertaining experience.
- Mobile Applications: Optimized websites and apps that extend the Museum experience onto mobile devices. This can include q-codes integration, interactive kiosks, GPS technology, outdoor interactive signage and other environmental marketing.
- Multimedia Installations: Immersive installations that include text, audio, still images, video, and do not require interactivity.
- Online Presence: Web sites, online collections, image databases, and exhibitions that present and interpret museum collections and themes, providing a rich and meaningful virtual experience. Projects should demonstrate effective use of multiple media formats, innovative ways of complementing physical exhibitions or providing surrogates for physical experiences in online only exhibitions.
- Public Outreach: Unique approaches showcasing museum initiatives for the press, marketing purposes, and donor development pieces. Could include email newsletters, viral marketing campaigns, fundraising videos, etc.
- Video, Film, & Computer Animation: Entries are linear and nonlinear narratives in video format. This includes documentaries, interviews, original cartoons, motion graphics, animations, and stop motion. Individual episodes or entire series may be entered.

[95] Source: http://www.mediaandtechnology.org

Appendix B: MUSE Award Criteria

MUSE Award winners demonstrate outstanding achievement in the following areas:

- Content: including the quality of writing, script, narrative, editing and research
- Image: the quality of video and/or still images with special attention to how objects are visualized
- Audio: the quality and innovative application of sound in a multimedia project
- Interface: the quality of the visitor or user's experience with special attention to the ease of use and/or navigation
- Design: the visual appeal of graphic elements and the overall "look and feel"
- Accessibility: the compliance with universal design guidelines
- Innovative use of technology: the extent to which new directions are charted or old challenges are resolved by using technology in a new way.
- Appropriate use of technology: the extent to which the selected technology is effective, given its defined audience, purpose, and context.

Overall appeal: including the success of connecting with a defined audience, and using narrative elements such as humor, drama, or mystery.

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